



Luxtera Delivers World's First Single Chip 100Gbps Integrated Opto-Electronic Transceiver

Silicon Photonics transceiver makes adoption of optics a reality for high volume backplane and other high density interconnect applications

4x28Gbps chip will be demonstrated to lead networking and computing OEMs at Super Computing 2011 and will be sampled to customers in 2011

Carlsbad, Calif. – November 8 2011 – Luxtera, the worldwide leader in [Silicon CMOS Photonics](#), today announces the industry's first single chip 100Gbps optical transceiver to support next generation cloud computing data centers and high performance computing (HPC) optical connectivity. Leveraging the benefits of Silicon Photonics, Luxtera's single chip opto-electronic transceiver includes four fully integrated 28Gbps transmit and receive channels powered from a single laser for an aggregate unencoded data rate of up to 112Gbps. The device is targeted for 100Gbps Ethernet, OTN and InfiniBand applications as well as emerging OIF (Optical Internetworking Forum) Short Reach (SR) and Very Short Reach (VSR) electrical interconnect to host systems.

With Molex's acquisition of the Active Optical Cable (AOC) business from Luxtera early this year and the development partnership established between the two companies, Luxtera began its evolution from a cabling solutions company to a fabless semiconductor provider, focusing on delivering CMOS Photonics based optical engines for high volume embedded optics applications. Today's announcement is an important milestone for Luxtera, extending the family of embedded transceiver products to 100Gbps data rate systems. The optical transceivers can be socketed directly onto the customers' switch or server boards for both backplane and rack mount connectivity. The integration reduces cost, power, and design complexity for OEMs. Luxtera and Molex continue to work in close strategic collaboration, providing a turn-key solution for embedded applications and delivering the world's first fully integrated 4x28Gbps optical engine that enables a wide array of product solutions. This includes 100Gbps AOCs which can be applied to 100Gbps Ethernet and EDR InfiniBand applications, as well as embedded optical transceivers.

Ever growing bandwidth requirements of cloud computing and the emergence of 100Gbps Ethernet as a primary data center interconnect technology drives an inflection point in the industry. As such, there is a growing need to find a viable solution for high density intra-system parallel 28Gbps connectivity. Copper interconnects are approaching significant constraints in terms of reach, power consumption, thermal management and connection routing, which when combined with the cost of high quality PCB materials, creates a price performance barrier for OEMs. The OIF is responding to this need by defining 28Gbps SR and VSR specifications for chip-to-transceiver connectivity.



Luxtera's Silicon Photonics technology is ideally positioned to take advantage of these industry trends to deliver a best-in-class connectivity solution.

Luxtera's Silicon Photonics technology utilizes the mainstream CMOS fabrication processes to deliver on-chip waveguide level modulation and photo-detection along with associated electronics, resulting in a fully-integrated single chip optical transceiver. Light from a single co-packaged laser is used to power multiple optical transmitters on a chip, eliminating the need for multiple lasers and reducing transceiver cost and power consumption. This powerful combination makes Silicon Photonics an obvious choice for system designers over VCSELs, providing key benefits in reliability, power consumption and signal integrity, which are critical to system design.

"Silicon Photonics has always had many promises, but very few companies have delivered on those promises – Luxtera is one that has. Their new chips and transceivers will enable 25Gbps single links and 100Gbps+ aggregate links in very small packages to allow large numbers of transceivers per one Rack Unit (1RU), thereby achieving the high front panel density that datacenter managers demand in the space limited server racks and switches," said Brad Smith, Vice President and Industry Analyst at LightCounting.com, a firm that specializes in high-speed interconnect market research. "As the bandwidth demands soar and longer reaches are needed in bigger datacenters, managers are requiring more high-bandwidth optical interconnects throughout their systems on a volume scale unheard of in the optical transceiver markets. Going forward we expect to see optics widely replacing copper interconnects, especially at reaches past 7m. Data rates continue to increase and push well past 10Gbps. As a result, copper cabling solutions are finding it increasingly difficult to stay in the game and it is akin to hitting the sound barrier. Additionally, VCSEL-based, optical transceiver companies are having tremendous difficulty bringing to market 25Gbps per channel transceivers. Silicon Photonics technology, such as from Luxtera, enables combining transistor electronics with photonics on the same chip and easily achieves >25G modulation rates at reasonable costs to the end user. Lastly, Luxtera's products enable optical interconnects from mid-circuit board in big systems with a reach over 2 km."

"The introduction of the 100Gbps Silicon Photonics transceiver, which is the outcome of a joint Luxtera-Molex collaboration, is a key milestone in optical connectivity for a wide range of cloud computing, data center and HPC applications. We are excited about this collaboration with Luxtera as it represents one of the many positive outcomes of our partnership and recent agreements," said Doug Busch, Vice-President and General Manager of Molex's Fiber Optic Products Business Unit. "As a strategic partner with Luxtera, Molex will deliver a line of connectivity products based on this IP spanning different data rates, lanes and mechanical form-factors."



“The benefits of Luxtera’s Silicon Photonics products have been proven in commercial applications, and are gaining favor in high volume embedded application markets where optical interconnect is beginning to displace copper. This creates an opportunity for exceptional growth over the next few years,” said Greg Young, President and CEO of Luxtera. “By delivering the first 100Gbps transceiver Luxtera is reinforcing its Silicon Photonics leadership position and is the first to enable OEMs to deliver cost effective system-to-system 100Gbps Ethernet and intra-system 28Gbps VSR connectivity.”

Luxtera and Molex will be privately showcasing the transceiver to lead customers at SC11 in Seattle, taking place November 12-18. The companies are sampling evaluation platforms to strategic partners and customers.

About Luxtera

Luxtera, Inc. is the world leader in Silicon CMOS Photonics. It is the first company to overcome the complex technical obstacles involved with integrating high performance optics directly with silicon electronics on a mainstream CMOS chip, bringing direct “fiber to the chip” connectivity to market. Headquartered in Carlsbad, California, Luxtera is a fabless semiconductor company that was founded in 2001 by a team of industry-renowned researchers and technology managers drawn from the communications and semiconductor industries. Luxtera has received funding from leading venture capitalists including August Capital, New Enterprise Associates, Sevin Rosen Funds and Lux Capital. More information can be found on the company's web site: www.luxtera.com

About Molex Incorporated

Providing more than connectors, Molex delivers complete interconnect solutions for a number of markets including data communications, telecommunications, consumer electronics, industrial, automotive, medical, military, lighting and solar. Established in 1938, the company operates 39 manufacturing locations in 16 countries. The Molex website is <http://www.molex.com>. Follow us at www.twitter.com/molexconnectors, watch our videos at www.youtube.com/molexconnectors, connect with us at www.facebook.com/molexconnectors and read our blog at www.connector.com.

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